

①

**BRADFORD DYEING ASSOCIATION, INC.**

104 W 40TH STREET  
NEW YORK, NY 10018  
PHONE (212) 944-2580

POST OFFICE BOX 539  
WESTERLY, RHODE ISLAND 02891  
TELEPHONE: (401) 377-2231

FREIGHT TO  
WORKS AT  
BRADFORD, R. I.

**AD-A250 136**



A001 Contract DAAK60-85-C-0019, per DD Form 1423,  
Manufacturing Methods Report.

**DTIC**  
**ELECTF**  
**MAR 18 1992**

1. A sufficient quantity of 50/50 Nylon/Cotton Twill was prepared in a continuous manner, in accordance with MIL-C-44034.
2. Prepared cloth was vat dyed continuously to the ground shade, as described in MIL-C-44034.
3. Cloth was then overprinted with the vat colors listed in Section 6 of MIL-C-44034 to produce shades in accordance with the standards supplied by R. Cowan of the U.S. Army Natick R & D Center, and using screens made from patterns supplied by Mr. Cowan, per contractual requirements.
4. Cloth was then developed continuously in an atmospheric, saturated steam ager, oxidized, washed, and dried.
5. Cloth was finished and shrunk mechanically, so as to meet the requirements of the specification.
6. MIL-I-45208A Inspection Systems Requirements were followed throughout all processing steps. 47

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.

92 3 16 058

**92-06775**



BRADFORD DYING ASSOCIATION, INC.  
P. O. BOX 539  
WESTERLY, RHODE ISLAND

TEST REPORT

CUSTOMER: U.S. Army Natick Research & Development Center  
DESCRIPTION: 50/50 Nylon/Cotton Twill, Daytime Desert Pattern  
SPECIFICATION: MIL-C-44034A and Natick Contract DAAK-60-85-C-0019  
ORDER NO.: 78152  
DATE: August 23, 1985  
YDGE: 5,866 greige yards

Test, Unit of Measure

SAMPLES

Results

Requirements

Test Report #85385

Pattern #1

	1	2	3	
Tensile Strength (5100) Warp	298	215	221	250
	215	218	224	231
	213	226	219	235
	222	220	223	230
	224	251	230	237
	216	222	222	234

FILLING

	1	2	3	
Tensile Strength (5100) Warp	143	129	143	148
	140	130	163	151
	136	140	137	143
	139	154	141	150
	149	158	142	141
	147	134	146	137

FILLING

	1	2	3	
Tensile Strength (5100) Warp	12.6	12.2	12.4	12.3
	12.4	11.7	12.1	13.4
	12.2	12.4	12.2	12.3
	12.0	12.1	12.0	13.2
	12.0	12.0	12.1	12.3
	12.0	12.0	12.1	12.3
	12.0	12.0	12.1	12.3

FILLING

	1	2	3	
Tensile Strength (5100) Warp	9.3	9.3	11.1	12.3
	10.1	9.2	10.7	11.7
	10.5	10.0	9.5	11.4
	9.2	9.9	9.5	12.0
	9.5	9.6	10.3	12.4
	9.7	9.6	10.8	12.6

TEST REPORT SHEET

15-3/8 15-1/4 15-3/8

27-1/4 27-1/4 27-3/8

ASQ-112	Test Report
BY	TESTER
DISCONTINUATION/	REASON FOR DISCONTINUATION
AVAILABILITY CODES	AVAILABILITY CODES
TEST DATE	TEST DATE
TEST SPEED OR TEST SPEED	TEST SPEED OR TEST SPEED
TEST TEMPERATURE	TEST TEMPERATURE
TEST HUMIDITY	TEST HUMIDITY
TEST PRESSURE	TEST PRESSURE
TEST FREQUENCY	TEST FREQUENCY
TEST LOAD	TEST LOAD
TEST STRENGTH	TEST STRENGTH
TEST LENGTH	TEST LENGTH
TEST WIDTH	TEST WIDTH
TEST TENSILE	TEST TENSILE
TEST FRICTION	TEST FRICTION
TEST STRENGTH	TEST STRENGTH
TEST LENGTH	TEST LENGTH
TEST WIDTH	TEST WIDTH
TEST TENSILE	TEST TENSILE
TEST FRICTION	TEST FRICTION

卷之三

୪୩

## Text, Unit of Measure

## Results

## Requirements

SAMPLES	Pattern #1			Pattern #2			Pattern #3		
	1	2	3	1	2	3	1	2	3
pH (2311)	5.6 5.6 5.6	6.5 6.5 6.5	6.5 6.5 6.5	6.7 6.7 6.7	6.6 6.6 6.6	6.6 6.6 6.6	5.0 - 8.5		
Nonfibrous Materials (2613)	1.2 1.2 1.2	1.3 1.3 1.3	1.1 1.1 1.1	1.1 1.1 1.1	1.2 1.3 1.3	1.0 1.0 1.0	2.04 max.		
Mercerized	pass	pass	pass	pass	pass	pass	Cert. of Compliance		
Weave (visual)	pass	pass	pass	pass	pass	pass	2/1 Left Hand Twill		
Singed	pass	pass	pass	pass	pass	pass	Cert. of Compliance		
Desized	pass	pass	pass	pass	pass	pass	Cert. of Compliance		
Fabric Identification (2206)	pass	pass	pass	pass	pass	pass	Cert. of Compliance		
Nylon: Identification (2539)	pass	pass	pass	pass	pass	pass	Cert. of Compliance		
Fusible	pass	pass	pass	pass	pass	pass	Cert. of Compliance		
Bendable	pass	pass	pass	pass	pass	pass	Cert. of Compliance		
Nylon Content (2536)	pass	pass	pass	pass	pass	pass	Cert. of Compliance		
Cotton Content (2530)	pass	pass	pass	pass	pass	pass	Cert. of Compliance		
Presence of Lotion Sulfur (2623)	pass	pass	pass	pass	pass	pass	shall contain no volatile sulfur than shown in the std. if		
Infrared Absorbance:	Did not meet the requirements as listed in the contract.								
Red									
Yellow									
Brown									
Colorfastness to:									
Light (5000)	Fair	Fair	Good	Fair	Fair	Good	Fair	Fair	Fair
Heat									
Washing									
Fuming									

Colorfastness to:

Light (5000)

Heat

Washing

Fuming

Fuming

Fuming

Fuming

Fuming

Fuming

Fuming

Fuming

Please see attached sheet

Fair	Fair	Good	Fair	Fair	Fair
Fair	Fair	Good	Fair	Fair	Fair
Good	Good	Good	Good	Good	Good

QIL #3060  
BRAUDORD DYEING ASSOCIATION, INC.  
P. O. BOX 539  
WESTERLY, RHODE ISLAND

## Test Unit of Measure

## Results

## Requirements

SAMPLES	Pattern #1	Pattern #2
	1	2
	3	

Color Fastness to:  
Laundering (3 cycles/  
5610)

Tan	pass	pass	pass	pass
Khaki	pass	pass	pass	pass
Brown	pass	pass	pass	pass
<b>Perspiration (5660)</b>				
Tan	pass	pass	pass	pass
Khaki	pass	pass	pass	pass
Brown	pass	pass	pass	pass
<b>Crocking (5661) *</b>				
Tan	pass	pass	pass	pass
Khaki	pass	pass	pass	pass
Brown	pass	pass	pass	pass

We certify that the requirements of para. 3.5 have been complied with.

Shrinkage (5556) (A/I)	1.6	1.1	1.6	2.2	2.3	1.7
Narp	1.6	1.0	1.5	2.2	2.2	1.7
	1.5	1.2	1.7	2.1	2.4	1.8
	1.6	1.1	1.6	2.2	2.3	1.7
Panel 1416	2.2	2.4	2.8	2.0	2.0	1.7
	2.2	2.4	2.8	2.0	1.9	1.8
	2.1	2.3	2.8	2.9	2.1	1.7
	2.2	2.4	2.8	2.0	2.0	1.7

\* 5%/24 = 3.0% weight - Comb. 25%W

INFRARED  
REFLECTANCE

#1-3      #2-1      #2-2      #2-3

*ST		#1-1		#1-2		#1-3		#2-1		#2-2		#2-3	
FCO		WL	%R										
700.0	43.82	700.0	48.37	700.0	44.38	700.0	47.71	700.0	48.88	700.0	47.29	700.0	47.29
720.0	44.51	720.0	48.85	720.0	44.70	720.0	47.88	720.0	48.97	720.0	47.47	720.0	47.47
740.0	45.41	740.0	49.28	740.0	45.30	740.0	48.41	740.0	47.48	740.0	47.94	740.0	47.94
760.0	48.58	760.0	50.16	760.0	48.35	760.0	48.26	760.0	48.44	760.0	48.79	760.0	48.79
780.0	48.10	780.0	51.45	780.0	47.83	780.0	50.52	780.0	49.71	780.0	50.03	780.0	50.03
800.0	49.88	800.0	53.04	800.0	48.56	800.0	52.16	800.0	51.37	800.0	51.60	800.0	51.60
820.0	51.85	820.0	54.86	820.0	51.55	820.0	53.93	820.0	53.23	820.0	53.38	820.0	53.38
840.0	53.82	840.0	56.86	840.0	53.69	840.0	55.80	840.0	55.16	840.0	55.27	840.0	55.27
860.0	58.03	860.0	58.57	860.0	55.88	860.0	57.70	860.0	57.18	860.0	57.24	860.0	57.24
880.0	58.08	880.0	60.32	880.0	57.92	880.0	59.48	880.0	59.09	880.0	59.05	880.0	59.05
900.0	59.82	900.0	61.80	900.0	58.78	900.0	61.17	900.0	60.81	900.0	60.68	900.0	60.68

ERR=31

*ST		#1-1		#1-2		#1-3		#2-1		#2-2		#2-3	
FCO		WL	%R										
700.0	33.73	700.0	34.98	700.0	33.54	700.0	41.50	700.0	41.08	700.0	40.86	700.0	40.86
720.0	34.12	720.0	35.11	720.0	33.67	720.0	41.67	720.0	41.21	720.0	40.97	720.0	40.97
740.0	34.81	740.0	35.66	740.0	34.17	740.0	42.34	740.0	41.85	740.0	41.54	740.0	41.54
760.0	35.70	760.0	36.43	760.0	34.99	760.0	43.40	760.0	42.88	760.0	42.55	760.0	42.55
780.0	36.90	780.0	37.55	780.0	36.16	780.0	44.90	780.0	44.37	780.0	43.99	780.0	43.99
800.0	38.48	800.0	39.05	800.0	37.71	800.0	46.82	800.0	46.21	800.0	45.81	800.0	45.81
820.0	40.39	820.0	40.97	820.0	39.58	820.0	49.03	820.0	48.40	820.0	48.08	820.0	48.08
840.0	42.54	840.0	43.08	840.0	41.73	840.0	51.41	840.0	50.70	840.0	50.44	840.0	50.44
860.0	44.88	860.0	45.35	860.0	44.12	860.0	53.79	860.0	53.17	860.0	52.93	860.0	52.93
880.0	47.19	880.0	47.62	880.0	46.45	880.0	56.12	880.0	55.45	880.0	55.28	880.0	55.28
900.0	49.43	900.0	49.78	900.0	48.76	900.0	58.26	900.0	57.52	900.0	57.53	900.0	57.53

ERR=31

*ST		#1-1		#1-2		#1-3		#2-1		#2-2		#2-3	
FCO		WL	%R										
700.0	28.69	700.0	28.92	700.0	28.08	700.0	30.10	700.0	30.15	700.0	29.81	700.0	29.81
720.0	29.06	720.0	29.10	720.0	28.29	720.0	30.37	720.0	30.36	720.0	30.04	720.0	30.04
740.0	29.43	740.0	29.36	740.0	28.46	740.0	30.98	740.0	30.94	740.0	30.63	740.0	30.63
760.0	29.75	760.0	29.61	760.0	28.67	760.0	32.03	760.0	31.93	760.0	31.63	760.0	31.63
780.0	30.21	780.0	30.00	780.0	29.04	780.0	33.58	780.0	33.42	780.0	33.15	780.0	33.15
800.0	31.02	800.0	30.75	800.0	29.79	800.0	35.58	800.0	35.38	800.0	35.14	800.0	35.14
820.0	32.12	820.0	31.85	820.0	30.87	820.0	37.89	820.0	37.72	820.0	37.48	820.0	37.48
840.0	33.49	840.0	33.16	840.0	32.16	840.0	40.56	840.0	40.39	840.0	40.19	840.0	40.19
860.0	35.02	860.0	34.84	860.0	33.84	860.0	43.49	860.0	43.35	860.0	43.19	860.0	43.19
880.0	36.53	880.0	36.12	880.0	35.18	880.0	46.51	880.0	46.27	880.0	46.26	880.0	46.26
900.0	38.18	900.0	37.74	900.0	36.82	900.0	49.40	900.0	49.21	900.0	49.30	900.0	49.30

ERR=31

QLL #3060  
BRAFORD DYEING ASSOCIATION, INC.  
P. O. BOX 539  
WESTERLY, RHODE ISLAND

I certify that the above tests were performed under my supervision and in accordance with the specification test requirements and that the reported results are true, valid, and applicable to the samples tested. I further certify that these samples were the only samples tested from the lot of end items identified above. I certify that these samples were randomly selected and represent the lot of components identified above.

Signed

*James H. Badger*

James H. Badger - Technical Director  
BRAFORD DYEING ASSOCIATION, INC.